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SNAKES OF THE PERUVIAN COASTAL REGION

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The Andes divide Peru into three regions familiar to every Peruvian as the "costa," the "sierra," and the "montaña." These regions, the desert coast with its numerous oases formed by the transecting valleys; the sierra with its high plateaus and mountain ridges extending far above snow line; and the tropical forest region of the deep valleys and of the connected Amazonian lowland east of the mountains, are in fact the major phytogeographic and zoogeographic divisions of Peru. The herpetological fauna of the highland is extremely limited, with only a single species of snake, *Tachymenis peruviana*, traceable above 12,000 feet, together with a common lizard and a few frogs and toads. The tropical lowland has the rich and complex fauna of the Amazon Basin, further complicated by the forms proper to the cloud forest zone at intermediate altitudes on the eastern side of the Andes. In this region much collecting remains to be done before an adequate study can be made even of creatures as relatively conspicuous as the snakes. The snake fauna of the coastal region, though somewhat impoverished in species, is of great interest, since the species and subspecies are with few exceptions endemic. In view of the relative simplicity of the coastal fauna, and with the accumulation of considerable collections from coastal Peru in Field Museum and in the Museum of Comparative Zoology, we feel that a review of the snakes of this faunal region may be a useful preliminary to further studies on the amphibians and reptiles of Peru.

In addition to a summary of the literature and an attempt to disentangle the nomenclature of the coastal forms, we here report

on two considerable collections from the Peruvian coast. The first of these was assembled by Dr. Axel A. Olsson while stationed at Negritos as geologist for the International Petroleum Company, with some increments from Mr. E. W. MacCormack, and more recently from Mrs. Harriet Frizzell, also of Negritos. The second consists of an accumulation of preserved snakes presented to Field Museum's Magellanic Expedition by Sr. Constante Larco Hoyle on the occasion of a visit of the senior author to the Hacienda Chiclin (north of Trujillo) in 1939. A few additional specimens from the coastal region were received from other sources as results of the continued interest of Mr. Colin C. Sanborn, also of the Magellanic Expedition of 1939. Mr. Sanborn collected at Chucurapi, the hacienda of the Romana family near Mollendo, in 1939, and in the little-known Ica region in 1942. A single small snake of the genus *Leptotyphlops* was presented by Mr. Bruce A. Hertig, of Lima, with several other additions to the collection from Dr. Marshall Hertig, of the Instituto Nacional de Higiene y Salud Pública, in Lima.

The collections of snakes lent to Field Museum for study by the University of Arequipa have been reported upon by the present authors. This collection makes available a considerable number of specimens from the southern portion of the coastal region of Peru. Finally, the junior author has had the advantage of examining all of the Peruvian collection at the Museum of Comparative Zoology, a collection which has been augmented recently by specimens received from Mr. W. F. Walker, Sr., of Oroyo, Peru, and from Messrs. J. A. Griswold, Jr., and G. P. Gardner, obtained on their expeditions to Peru.

The coastal region of Peru may be defined for the purpose of the present paper as the coastal drainage extending from the Ecuadorean border to Chile, and from the Pacific coast to the crest of the western cordillera. The Catamayo Valley, extending into the Ecuadorean Department of Loja, the low passes of the Cordillera Occidental in Cajamarca at the north, and the southwestern continuation of the coastal desert into Chile, make necessary some consideration of these outlying areas in the discussion of various species in our list.

The Hispanic Map published by the American Geographic Society indicates that there are three passes over the western cordillera near the Ecuadorean border of Peru somewhat below 10,000 feet elevation, and various passes between coastal Piura and Lambayeque and Andean Cajamarca at less than 8,000 feet. These passes apparently explain the presence of some non-endemic

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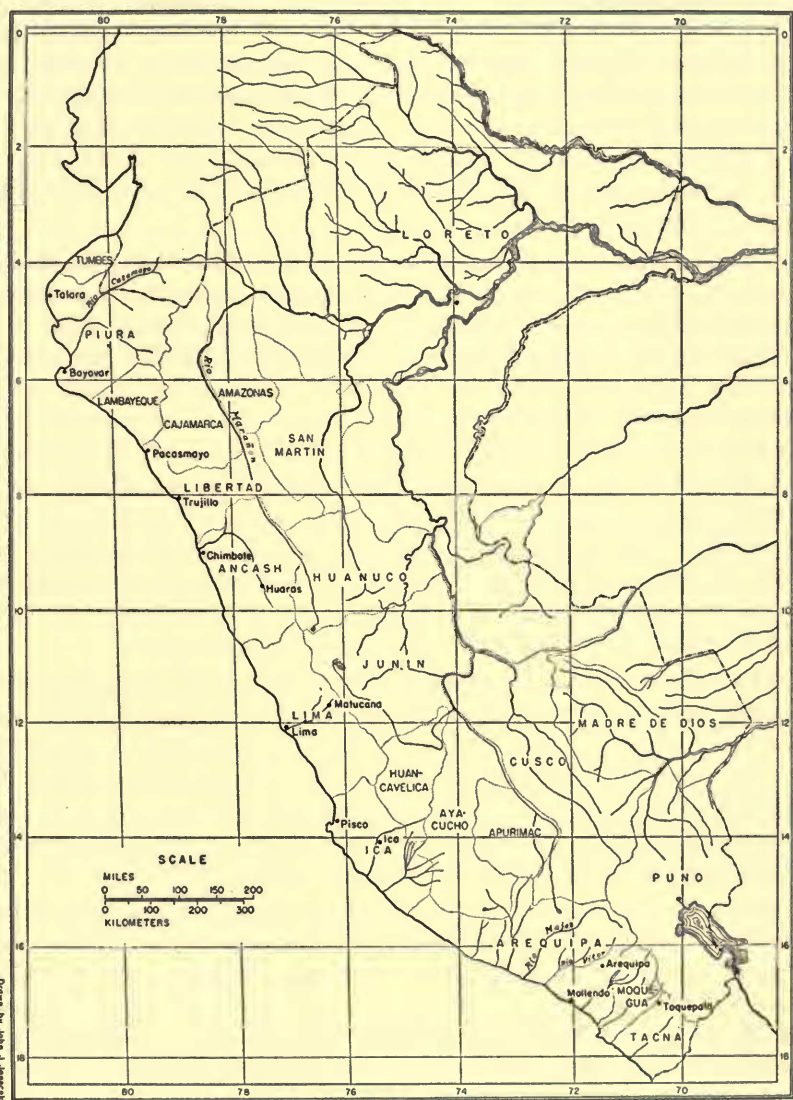


FIG. 26. Map of Peru, showing localities mentioned in the text.

forms of Amazonian or Ecuadorean origin in the northern part of the coastal area and also throw light on the transgression of certain elements of the coastal fauna into the arid northern portion of the Marañon Valley. Farther south the passes are at fourteen to sixteen thousand feet, well above the altitude reached by any species of the coastal fauna proper. This stupendous mountain barrier is not again transgressed by reptiles of the lowland east of the Andes until, at the south, the lake region of southern Chile again provides passes at low altitude.

The Peruvian coastal region is one of the most barren areas in the world, much of it rock and sand desert, extending for miles without visible plant or animal life. It contrasts strongly with the Sonoran desert in southwestern North America, familiar to North American biologists, with its wealth of conspicuous plants and animals adapted to desert conditions through age-long evolution. Our Sonoran desert is literally the headquarters of the reptilian fauna of a continent, with numerous forms exhibiting remarkable and extreme adjustment to desert conditions. In the Peruvian desert, the reptiles form a mere appendage to the rich reptilian fauna of South America as a whole, and in spite of the endemism of numerous species, it seems clearly to be a recent desert, in which there has not been time for the evolution of specifically xerocole types.

The most remarkable botanical feature of coastal Peru, the rich seasonal flora of the "lomas," which depends on concentration of the coastal fogs in certain slopes and in certain valleys, appears to have no associated amphibians or reptiles. There are considerable botanical differences between the Piura region and the coastal desert farther to the south. The most useful account of the phytogeography of Peru appears to be that of Weberbauer (1922, 1936).

Much of the interest of the Peruvian coastal fauna and flora lies in its linear extent from north to south; the biota is richest in Piura at the north, becoming gradually impoverished to the south, where the coastal plain is all but pinched out between the mountains and the sea in northern Chile. In this region only a minimum of land life persists. To the south of Antofagasta, a scrub vegetation develops, essentially with only an impoverished desert fauna. The characteristic Peruvian lizard *Tropidurus peruvianus* persists on the coastal strip and the common highland snake of Peru (*Tachymenis peruviana*) descends to low altitudes in central Chile. In southern Chile, where the humid evergreen forest begins, there is a radical faunal change, with numerous endemic genera of frogs,

though none of snakes. It is evident, even from our necessarily limited studies, that a systematic survey of the coastal fauna through its 2,500-mile range from north to south would disclose numerous variation clines, the establishment of which is necessary to any definitive taxonomic arrangement of the elements composing the fauna.

LIST OF LOCALITIES

The localities mentioned in the text are shown on the accompanying map. A list of the coastal localities from which specimens have been examined follows:

Arequipa: The vicinity of Arequipa, capital of the Department of Arequipa, elevation 7,500 feet. Arid slopes, a semi-desert except in irrigated valley bottoms.

Bayovar: A port on the southern shore of the Bahía de Sechura, Department of Piura.

Cajamarquilla: Adobe ruins in the Rimac Valley a few miles inland from Lima, Department of Lima. Matted bromeliad vegetation.

Chiclin: A sugar-producing hacienda between Trujillo and Chicama, Department of Libertad. Irrigated cane fields and pastures, surrounded by sandy desert toward the coast and by stony pavement desert farther inland.

Chimbote: A port near the mouth of the Río Santa at the northern boundary of the Department of Ancash.

Chongollapi: A village at the desert border in Piura.

Chosica: A resort town above Lima, in the Rimac Valley, at an elevation of 2,800 feet, Department of Lima.

Chucurapi: A sugar hacienda near Mollendo, in the Department of Arequipa.

Ica: A considerable metropolis inland from the port of Pisco, in a broad alluvial valley.

Jequetepeque: A valley in the Department of Libertad, entering the sea near Pacasmayo.

Lima: Capital of Peru, Department of Lima, on the irrigated alluvial plain of the Rimac River.

Majes Valley: A long, well-watered valley north of the Vitor Valley, Department of Arequipa.

Negritos: A port in northern Piura just south of Talara.

Pacasmayo: The port of entry for Cajamarca in the northern part of the Department of Libertad.

Quebrada Montero: An arroyo in the oil-field region, Department of Piura.

Quebrada Parinas: An arroyo emptying into the ocean at Parinas just south of Negritos, Department of Piura.

Quebrada Paxul: An arroyo in the oil-field region, Department of Piura.

Quebrada Sal Grande: An arroyo in the oil-field region, Department of Piura.

Quebrada Seca: An arroyo in the oil-field region, Department of Piura.

Surco: A small town at an elevation of about 6,000 feet, in the Rimac Valley below Matucana, Department of Lima.

Talara: The port and headquarters of the International Petroleum Company, Department of Piura.

Tambo: A small town on the Rio Tambo, in the southern part of the Department of Arequipa.

Toquepala: A mining camp at an elevation of 8,000–10,000 feet, east of the city of Moquegua, Department of Tacna.

Vitor Valley: A valley crossing the coastal desert of the Department of Arequipa below Arequipa.

Other localities from which specimens have been examined include especially Perico, the Rio Marañon, and Bellavista, in the Marañon Valley (eastern Cajamarca), where the late G. K. Noble made collections for the Museum of Comparative Zoology in 1916.

Specimens of coastal species in the collections of the University of Arequipa recorded as from "Selvas de Sandia" and "Madre de Dios" appear to bear erroneous data (Schmidt and Walker, 1943, p. 284).

Serpentes

Leptotyphlopidae

Leptotyphlops rufidorsus Taylor

Leptotyphlops rufidorsum Taylor, Univ. Kans. Sci. Bull., 26, p. 533, fig. 2, 1940—Lima, Peru.

A medium-sized *Leptotyphlops*, without cephalic or caudal spots, with a median dorsal brownish band covering three scale rows and the adjacent half scale rows; dorsal scales about 260.

Known only from the type locality and from Chiclin, Libertad, as here reported, thus possibly characteristic of the central portion of the desert region.

A single specimen, No. 34305, from Chiclin, Libertad, has dorsal scales 256, caudals 16, scales around body 14, around mid-tail 10; length 241, tail 12; diameter of body contained in total length about 40 times. Supraocular and labial separating rostral from ocular on both sides. Coloration in close agreement with Taylor's description.

We have read Werner's description of *Glauconia albifrons* var. *rubrolineata* (Werner, 1901, p. 6), said to be from Lima, with attention. It does not appear to refer to any of the species here recorded, and, as remarked below (p. 313), the type locality may well be erroneous.

Leptotyphlops subcrotillus Klauber

Leptotyphlops subcrotilla Klauber, Trans. San Diego Soc. Nat. Hist., 9, pp. 59-66, fig. 2, 1939—Grau Tombes, northern Peru [=Grau, Tumbes].

A small slender worm snake of the *albifrons* group, with a white spot on the rostral and on the caudal spine; dorsal scales from rostral to tail spine about 330.

Known only from the type locality and from Chiclin, Libertad, as here reported, thus apparently ranging through the northern desert region.

Two specimens, Nos. 34267 and 34304, from Chiclin, Libertad, agree excellently with Klauber's description. The dorsal scales number respectively 325 and 324; scale rows 14; scales around mid-tail 10; total length and tail length 137 and 6, and 184 and 8; diameter of body contained in total length 70 to 90 times.

Leptotyphlops melanurus sp. nov.

Type from Chiclin, Libertad, Peru. No. 34269 Field Museum of Natural History. Presented to Magellanic Expedition of Field Museum, November, 1939, by Sr. Constante Larco Hoyle.

Diagnosis.—A small slender worm snake, nearly uniform in coloration, not distinctly lineate; no caudal spot, rostral spot occasionally present; dorsal scales 395; ocular shield in contact with the nasal.

Description of type.—Body slender, head very little widened, tail about three times as long as its diameter, ending in a small spine-bearing scale. Snout rounded, projecting.

Rostral narrowed posteriorly, extending backward barely to the eye; upper portion of nasal considerably larger than lower; ocular broadly in contact with nasal; ocular widest at eye-level, eye distinct, at anterior border of ocular supraoculars wider than long, posterior larger than anterior, both larger than the median series of scales; third scale of median series largest, followed by a narrower scale with a small scale on each side, while the fifth scale is wider, though not longer, than the third; scales following the fifth gradually narrowed to the uniform mid-dorsal series; parietals about as wide as posterior supraoculars; chin shields small.

The scales are in 14 rows throughout the length of the body, 10 around the middle of the tail. Dorsal scales from rostral to caudal spine 395; caudals 18.

General color brown, a little lighter beneath, the outlines of the scales lighter; a light spot on the rostral, none on the tail; upper head shields all with light pores.

Measurements of type.—Length 135; tail 6; diameter of body 2.

Notes on paratype.—The single paratype, No. 34268, obtained with the type at Chiclin, measures only 91 mm., tail 5. It agrees almost exactly with the type, with dorsal scales 396 and caudal 20.

Range.—Known only from type locality.

Leptotyphlops tessellatus Tschudi

Typhlops tessellatum Tschudi, Fauna Peruana, Herp., p. 46, 1845—Lima.

Two specimens of a small *Leptotyphlops* of the *albifrons* type from Lima may be referred with little hesitancy to Tschudi's species. One of these was collected and presented by Mr. Bruce A. Hertig, the other was collected in the wall of an old adobe house in Lima by Mr. Felix Woytkowski, a well-known collector of Peruvian insects. *Leptotyphlops tessellatus* is here redescribed in some detail for comparison with recent descriptions of species of this genus.

Diagnosis.—A small worm snake with lineate pattern, darker on the upper half of the body, and with white spot present on rostral and tail spine. Ocular separated from nasal by supraocular and labial; dorsal scales about 260.

Description (No. 35097).—Body slender, head scarcely wider than body, tail three and one-half times as long as its diameter, ending in a rather large pointed scale. Snout rounded, projecting.

Rostral sharply narrowed posteriorly, extending backward barely to the level of the eye; upper and lower portions of nasal subequal; ocular separated from nasal by a contact of the supraocular with the first labial; eye distinct at upper anterior corner of the ocular; anterior supraoculars a little smaller than posterior, directed obliquely forward and outward; posterior supraoculars about equal to parietals; median scales very narrow, fifth behind rostral widest.

The scales are in 14 rows throughout; 10 scales around middle of tail. Dorsal scales from rostral to tail spine 261; caudals 17.

General color brown, lighter on the edges of the scale rows, producing a lineate appearance; seven dorsal rows darker than the seven ventral; a light spot on the rostral and lower portions of the nasals, and one covering the entire tail spine and two adjacent

scales; upper head shields all with light pores. Length 90; tail 5; diameter of body 2.

The second specimen in our collection (No. 36726) measures 102; tail 6; diameter of body 2. It has 262 dorsal scales from rostral to tail spine.

Range.—Known only from the coastal area of north-central Peru near Lima.

Remarks.—There appears to be no doubt that the *Leptotyphlops albifrons* of authors is an omnium gatherum of species of varying degrees of distinctness. In view of the generally endemic nature of the Peruvian coastal fauna, it is extremely unlikely that true *albifrons*, an Amazonian species, should occur there. It is nevertheless surprising that four fully distinct species of *Leptotyphlops* should occur in this faunal area.

The reference of the present form to *tessellatus* is based primarily on the fact that the type locality is Lima, where Tschudi obtained three specimens from houses, so that it appears to be reasonably abundant. Darwin obtained a specimen from Lima, recorded by Boulenger (1893, p. 36), which presumably belongs here, as may a specimen from Chimbote reported by Cope (1877, p. 35).

Boidae

Constrictor constrictor ortonii Cope

Boa ortonii Cope, Proc. Amer. Phil. Soc., 17, p. 35, 1878—Chilete, near Pacasmayo.

Constrictor constrictor Dunn, Proc. Biol. Soc. Wash., 36, p. 186, 1923—Perico and Rio Marañon.

A medium-sized boa constrictor, pale in coloration in association with its desert habitat, related to *C. c. imperator* in the relatively low number of dorsal scale rows. It differs from *imperator* of Central America and northwestern South America in having a higher number of ventrals and in its lighter and more sandy ground color.

The range of *C. c. ortonii* appears to extend from Perico and the upper Marañon Valley to Piura and south to Libertad, in the arid region of northwestern Peru.

The two specimens in Field Museum, No. 8360, from Parinas Valley, Piura, and No. 34301, from Chiclin, Libertad, are both males, with dorsal scales 57–62 at mid-body, ventrals 250–251, and caudals 46–55. The five specimens collected by the late G. K. Noble for the Museum of Comparative Zoology, Nos. 17664 and

18960, from Perico, and Nos. 18977–18979 from the Rio Marañon, include three males and two females. The total ventral range in males is 246–252, and caudals 46–59. In two females, the ventral range is 246–248, caudals 49–51. The maximum of dorsal scale rows in both sexes is 72.

The separation of the orbital scales from the labials in the type, thought by Cope to distinguish this form, holds in several of our specimens, but is not diagnostic.

Colubridae¹

Dryadophis boddaertii heathii Cope

Drymobius heathii Cope, Journ. Acad. Nat. Sci. Phila., 8, p. 179, 1876—Valley of Jequetepeque; Proc. Amer. Phil. Soc., 17, p. 34, 1877.

Herpetodryas boddaertii var. *heathii* Boettger, Ber. Senck. Ges., 1889, p. 313, 1889.

Dryadophis heathii Stuart, Misc. Publ. Mus. Zool. Univ. Mich., 49, p. 77, 1941.

The common *Dryadophis* of the Peruvian coastal region is a medium-sized grayish-colored ground snake, with a light lateral stripe on each side. It is distinguishable from the race *D. b. boddaertii* of the Amazon Basin by the position of the lateral stripe on scale rows 4, 5, and 6 anteriorly and 3, 4, and 5 posteriorly, instead of on 4 and 5 only. The young are crossbarred.

The subspecies *heathii* is confined to the Peruvian coastal region, ranging from Libertad to Lima and from sea level to at least 6,000 feet altitude.

The specimens examined in Field Museum collections are No. 5706, from Pacasmayo, collected by W. H. Osgood and M. P. Anderson in 1912; Nos. 34283, 34296–34299, 34312, and 34316–19, from Chiclin; and No. 38108, collected at Surco, and presented by Dr. Marshall Hertig.

In this series, four male specimens have ventrals 176–185 and caudals 103–107; five females have ventrals 189–192 and caudals 103–108, thus altering Stuart's diagnosis of *heathii* by a slight lowering of the range of caudals and a considerable lowering of that of the ventrals. This is not surprising, in view of the small number of specimens of this form previously available. The color-

¹Jan's record of *Rabdosoma badium multinctum* (Icon. Gén. Ophid., Livr. 10, pl. 4, fig. 5, 1865), from Lima, is not included. It is doubtless based on a transported specimen.

ation of the under surface is not always immaculate; it may be dotted with gray, and the limit of the encroachment of the dorsal ground color upon it is faintly marked by a narrow whitish line on each side. These changes tend to reduce the differences between *heathii* and *boddaertii*, and we have accordingly placed *heathii* as a race of *boddaertii*.

The series before us includes four specimens from Chiclin with the typical juvenile crossbarred coloration of the *boddaertii* group (Stuart, 1941, p. 21). A fifth specimen, No. 38108, a male, from Surco, Lima, taken at an altitude of 6,000 feet, measures only 275 mm. in body length, but has no trace of the juvenile markings. We agree with Stuart (l.c., p. 73) in suspecting that there may be a dwarfed Andean race, or that both *b. heathii* and *b. boddaertii* may be dwarfed at altitudes above their normal range.

Stuart (l.c., p. 70) reports a specimen from Huaraz, in the coastal drainage, as *boddaertii boddaertii*. On geographic grounds, we question this allocation of the specimen.

Drymarchon corais melanurus Duméril and Bibron

Spilotes melanurus Duméril and Bibron, Erp. Gén., 7, p. 224, 1854—Mexico.

Spilotes pullatus dichrous Dunn, Proc. Biol. Soc. Wash., 36, p. 186, 1923 (not of Peters, part).

Drymarchon corais melanurus Ruthven, Misc. Publ. Mus. Zool. Univ. Mich., 8, p. 65, 1922; Parker, Ann. Mag. Nat. Hist., (11), 2, p. 443, 1938.

Drymarchon corais melanurus is a large terrestrial snake, characterized by black coloration on the head and neck and on the posterior part of the body and tail, with the dorsal scales in slightly oblique rows.

Its presence in coastal Peru rests on the somewhat dubious record from Chongollapi, Piura (Dunn, 1923, p. 186), but further records from the Catamayo Valley in Ecuador (Parker, 1938) make its occurrence in the arid coastal region probable.

We do not find characters to differentiate this form from the Mexican and Central American *melanurus*, but it is evident that the Peruvian and Ecuadorean population affords a taxonomic problem, especially in view of the various races of *corais* in Mexico demonstrated by Smith (1941, p. 466). The Chongollapi specimen has 214 ventrals and 75 caudals. It apparently represents the southern extreme of a trend toward lower numbers of ventrals, which has been pointed out by Smith.

We are not convinced of the desirability of nomenclatural changes on the grounds offered by Smith (1941, p. 474); see Harper (Copeia, 1942, p. 180) for the contrary argument. It is evident that a malevolent person, applying the interpretation of the rules as followed by Smith, could upset a very large proportion of current names.

***Dromicus angustilineatus* sp. nov.**

Dromicus chamissonis Schmidt and Walker, Field Mus. Nat. Hist., Zool. Ser., 24, p. 283, 1943 (in part, not of Wiegmann).

Type from Toquepala, Tacna, Peru. No. 45908 Museum of Comparative Zoology. Adult male, collected in April, 1938, by W. F. Walker, Sr.

Diagnosis.—A *Dromicus* allied to *chamissonis* of coastal Chile, but with ventrals 204–217 (maximum known in *chamissonis* 200) and with a narrow dark mid-dorsal line instead of the wider band of the Chilean form.

Description of type.—Form of body typically colubrid; rostral broader than deep, just visible from above; internasals shorter than prefrontals; frontal twice as long as broad, longer than its distance from the tip of the snout, as long as the parietals; supraoculars nearly as wide as the frontal; nasal divided; loreal longer than deep; preocular single, reaching the upper surface of the head, but not in contact with the frontal; 2 postoculars on each side; temporals 1–2 on each side; upper labials 8, fourth and fifth entering the eye; lower labials 10, six in contact with the chin shields; posterior chin shields longer than the anterior; dorsal scales smooth, with single apical pits, scale reduction formula 19–17–15, the scale rows at mid-body 19; ventrals 204; anal divided; caudals 111.

Posterior maxillary teeth enlarged. Hemipenis bifurcate, with bifurcate sulcus and with tips of the bifurcations calyculate.

A mid-dorsal dark line three scales wide on the nape soon narrowing to the width of the mid-dorsal scale row; a light gray band extending to the fifth scale row, bounded below by a sharply marked though somewhat interrupted black line on the middle of that scale row; a more obscure dark line along the middle of the light gray band; darker gray on the sides, merging below into the lighter ventral color; head brownish above, with a dark streak from the rostral through the eye and across the temporals to become continuous with the lateral darker gray band.

Notes on paratypes.—In addition to M.C.Z. No. 45907 from the type locality, we have examined six specimens in the collection of the University of Arequipa (Schmidt and Walker, 1943, p. 283), of which four have now been accessioned by Field Museum as Nos. 40035–40038. Three of these, F.M.N.H. Nos. 40037–40038 and U.A. No. 141, are said to be from Madre de Dios, in Amazonian Peru; this we regard as a mistake caused by confusion of data. The remaining paratypes are from Tambo, F.M.N.H. No. 40035; from the vicinity of Arequipa, F.M.N.H. No. 40036; and from the Vitor Valley, U.A. No. 10. This series of specimens, though much faded from exposure to light, agrees well with the type. Two have 21 scale rows on the neck; one has upper labials 7–8, and one has upper labials 9–9; anterior temporals 2 in two specimens; four males have ventrals 195–204, caudals 111–125; three females have ventrals 205–217 and caudals 110–111. The narrow black lines of the back tend to be broken into series of spots, but are distinct in six paratypes; in M.C.Z. 45907 they have disappeared entirely.

Measurements.—Type 584; tail 161. Largest female (U.A. 10) 891; tail 280.

Range.—Southwestern Peru, from near sea level to about 10,000 feet.

Remarks.—It seems evident that *Dromicus angustilineatus* is directly related to *D. chamissonis* of Chile, which it replaces in southern Peru, and from which it differs in its higher number of ventrals, and in the narrow dorsal line, instead of the broad dorsal band of the Chilean species.

***Dromicus tachymenoides* sp. nov.**

Type from Chucurapi (near Mollendo), Department of Arequipa, Peru. No. 34261 Field Museum of Natural History. Adult female, collected in October, 1939, by Colin C. Sanborn.

Diagnosis.—A *Dromicus* allied to *D. chamissonis* of Chile and to *angustilineatus* described above; differing from the former in its higher number of ventrals (202–220) and from the latter in having a spotted coloration, without longitudinal lines and bands.

Description of type.—A snake of typical colubrid proportions; rostral nearly as deep as broad, visible from above, internasals shorter than the prefrontals, frontal nearly twice as long as broad, a little longer than its distance from the end of the snout, and nearly as long as the parietals; supraoculars large, as wide as the

frontal posteriorly; nasal divided; loreal nearly twice as long as deep; preocular single, extending to the upper surface of the head, not in contact with the frontal; 2 postoculars; temporals 2-2 on each side; supralabials 10 on the left side, fifth and sixth entering the eye, 8 on the right, fourth and fifth entering the eye; several labials horizontally divided; lower labials 11-13, 7 and 6 in contact with the chin shields. Dorsal scales smooth, with single apical pit, scale rows 19 at mid-body, 23 immediately behind the head, full formula 23-21-19-17-15; ventrals 202, anal divided, caudals 107.

Posterior maxillary teeth enlarged, not grooved.

General coloration light gray (superficial epidermis lacking), with black punctulation on most scales; two parallel rows of paired black or dark gray spots along the back, the pairs uniting anteriorly to form transverse bars on the neck; venter mottled gray and yellow. Head brownish gray above, with a dark gray band from the rostral through the eye to the neck, not in contact with the anterior dark crossbars; labials and chin yellowish, slightly mottled with gray.

Measurements.—Total length 1,055; tail 300.

Notes on paratypes.—Two paratypes received from the University of Arequipa agree excellently with the type in scale and color characters. Both are females; F.M.N.H. No. 40033 is without data; U.A. No. 15 is said to be from the "Selvas de Sandia," a locality that we regard as an error in labeling. The former specimen has ventrals 220, caudals 106; in the latter the ventrals can not be counted; it has caudals 102. The edges of the ventrals are dotted with black in both specimens. A third paratype, M.C.Z. 45940, is from Toquepala. It agrees in coloration but has a somewhat broader rostral, longer frontal, and shorter loreal than the type; it has ventrals 216, and caudals 95.

Range.—Known only from southern coastal Peru, where it occurs together with *angustilineatus*, from sea level to ten thousand feet altitude.

Remarks.—It will be seen that the numbers of ventrals and caudals in *tachymenoides* are little different from those in *angustilineatus*; the species appears to be adequately distinguished by its spotted and crossbarred color pattern, which bears a general resemblance to that of *Tachymenis peruviana*. It is obvious that the range and habitat of *Dromicus angustilineatus* and of *D. tachymenoides* afford unsolved geographic problems.

Boigidae

Leptodeira larcorum sp. nov.

Sibon annulatum (not of Linnaeus) Cope, Proc. Amer. Phil. Soc., 17, p. 33, 1877—Chimbote Valley.

Leptodeira annulata Dunn, Proc. Biol. Soc. Wash., 36, p. 186, 1923.

Type from Chiclin, Libertad, Peru. No. 34302 Field Museum of Natural History. A male specimen, presented to the Magellanic Expedition of Field Museum by Sr. Constante Larco Hoyle, in 1939.

Diagnosis.—A *Leptodeira* resembling *L. rhombifera* of Central America and northwestern South America in having vertebral and paravertebral scale rows little if at all enlarged, and thus differing from *L. annulata annulata*; differing from *rhombifera* in having a higher number of ventrals, 175–184 versus 158–178, and caudals, 78–91 versus 64–84, and in the strong tendency for the dorsal spots to fuse into a zigzag line (in the latter respect resembling *annulata annulata*; Dunn, 1936, p. 691).

Description of type.—A snake with large head, distinct from the neck, with a large eye; body slightly compressed. Rostral much broader than high, scarcely visible from above; internasals shorter than the prefrontals; frontal one-third longer than broad, as long as its distance from the end of the snout, shorter than the parietals; nasal divided; loreal slightly longer than high; a large preocular, in contact with the frontal; a small inferior preocular formed by division of the third labial; 2 postoculars; temporals 1–2, with a small additional anterior temporal cut off from the seventh labial; upper labials 8, the fourth and fifth entering the eye; lower labials 10, six in contact with the chin shields; posterior chin shields slightly longer than anterior; dorsal scales smooth, simplified formula 19–21–15; ventrals 184, anal divided, caudals 91.

Head grayish brown with a butterfly-shaped darker marking on the parietals and occiput, and a dark band from snout to angle of mouth; grayish brown above, with alternating paravertebral blotches that tend to fuse into a zigzag dorsal band; a lateral row of alternating spots, with still smaller spots on the first and second scale rows; lateral spots disappearing on the tail; uniform yellow beneath, with faint brown markings on the chin and lower labials.

Measurements of type.—Total length 630; tail 172.

Notes on paratypes.—Twenty-three specimens in addition to the type are referred to this species: F.M.N.H. Nos. 34306–34311, from the type locality, presented by Sr. Constante Larco Hoyle; M.C.Z. Nos.

17412–17416 from Perico, and 17454–17465 from Bellavista, collected by G. K. Noble in 1916. In this series, in excellent agreement with the type in coloration, the preocular is in contact with the frontal in about half the specimens, and several agree with the type in the presence of a small lower preocular, and in the small supernumerary anterior temporal.

There is some geographic variation in the caudals in females, not discernible in the smaller series of males, as shown below:

	Number of specimens	Sex	Ventrals	Caudals
Coastal series	3	♂	178–184	88–91
	3	♀	183–188	75–82
Cajamarca series	2	♂	178–182	89–91
	10	♀	175–184	78–84

The largest paratype, F.M.N.H. No. 34306, measures 905; tail 204.

Range.—Northern coastal Peru, extending into the arid parts of the Marañon Valley.

Remarks.—The new form is named for the brothers Rafael, Constante, and Xavier Larco Hoyle, who together manage the Hacienda Chiclin, where their régime is characterized by modern and ingenious agricultural methods, social consciousness, and a wide interest in general science. Thus it was not an accident that they should have accumulated the considerable collection of snakes presented by them to the Magellanic Expedition of Field Museum and here reported upon.

Oxyrhopus fitzingeri fitzingeri Tschudi

Siphlophis fitzingeri Tschudi, Fauna Peruana, Herp., p. 56, pl. 8, 1845—coast of Peru.

Oxyrhopus fitzingeri Jan, Elenco Syst. Ophid., p. 93, 1863; Icon. Gén. Ophid., Livr. 35, pl. 5, fig. 1, 1870; Boulenger, Cat. Snakes Brit. Mus., 3, p. 108, 1896; Werner, Abh. Mus. Dresden, 9, No. 2, p. 8, 1900 (part).

Pseudoboa fitzingeri Amaral, Proc. U. S. Nat. Mus., 67, art. 24, p. 12, 1925 (part)—Verrugas Canyon.

Oxyrhopus fitzingeri fitzingeri is a medium-sized snake with the strong musculature of a constricting species, characterized by singularly irregular dark brown markings on a yellowish ground color. These spots may cover only a single scale, or may be confluent into blotches or zigzag lines. It is distinguished from its northern subspecies (described below) by a much higher number of ventrals and

caudals. It is a common snake of the arid coastal region from sea level to at least 6,000 feet altitude in the Rimac Valley.

We have examined a single specimen in Field Museum, No. 34361, from Surco, collected by Marshall Hertig in 1938. This specimen, a female, has ventrals 227 and caudals 94; by division of anterior labials, there are 10 upper labials on each side; preoculars 2 on the left, 1 on the right side; length 714, tail 157.

Search of the literature discloses two additional female specimens from the Rimac Valley or presumably so, and these agree with our Surco specimen and with the type in number of ventrals. In the type the ventrals number 236 and caudals 77, and it undoubtedly is a female; the specimen recorded by Boulenger has ventrals 232 and caudals 81; and one from Verrugas Canyon (see Hertig, 1942, pt. III, p. 24 and pl. 1), collected by C. H. T. Townsend, has ventrals 227 and caudals 79. The senior author has elsewhere called attention to the confusion of data in the Dresden Museum collection reported upon by Werner (1901). Much of the Chanchamayo material in the collection undoubtedly was received from the Chanchamayo near La Merced in the Department of Junín, the residence of Carlos Schunke, a dealer in museum specimens; but this could scarcely have been the locality where *Oxyrhopus fitzingeri* and *Micrurus tschudii* were collected. Such confusion of data in collections received from foreign correspondents is a not infrequent occurrence. The Dresden collection includes specimens with both high and low numbers of ventrals; but as these are not sexed they cannot be assorted, even arbitrarily, to the two subspecies of *fitzingeri*.

Oxyrhopus fitzingeri frizzelli subsp. nov.

Oxyrhopus fitzingeri Cope, Journ. Acad. Nat. Sci. Phila., 8, p. 177, 1876—Jequetepeque; Proc. Amer. Phil. Soc., 17, p. 33, 1877—Chimbote; Boettger, Ber. Senck. Ges., 1889, p. 314, 1889—Pacasmayo; Peracca, Bol. Mus. Zool. Torino, 19, No. 465, p. 14, 1904—Puntilla Santa Elena, Ecuador.

Clelia fitzingeri Dunn, Proc. Biol. Soc. Wash., 36, p. 186, 1923—Chongollapi, Piura, Peru.

Pseudoboa fitzingeri Amaral, Proc. U. S. Nat. Mus., 67, Art. 24, p. 12, 1925—part, Piura; Parker, Ann. Mag. Nat. Hist., (11), 2, p. 444, 1938—Cata-mayo Valley, Ecuador.

Type from Negritos, Piura, Peru. No. 35997 Field Museum of Natural History. A male specimen, collected in 1939 and presented by Harriet E. and Don L. Frizzell.

Diagnosis.—An *Oxyrhopus* with the typical *fitzingeri* coloration, but with a much lower number of ventrals, 202–207 in females, contrasted with 227–236 in four female *fitzingeri*; and of caudals 57–69 instead of 77–94.

Description of type.—A relatively slender snake with small pointed head scarcely distinct from the neck. Rostral wider than high, well visible from above; internasals much smaller than prefrontals, their suture less than half that of the prefrontals; frontal a little longer than wide, shorter than the parietals; loreal twice as long as high; preocular single, widely separated from the frontal, postoculars 2 on each side; upper labials 8–8, the fourth and fifth entering the eye; lower labials 9–9.

General ground color pale yellow, the venter and lowermost scale rows immaculate; back heavily and irregularly marked with dark brown spots, mostly following scale outlines; top of head mottled with dark on a paler brown ground color; a solid dark brown nuchal mark nearly as long as the head.

Measurements of type.—Total length 647; tail 131.

Notes on paratypes.—Six paratypes are available for the establishment of *O. f. frizzelli*: An additional specimen, No. 35998, collected by V. J. Molonoy and Don L. Frizzell at the mouth of the Quebrada Paxul, Amotape Mountains, Piura; No. 5665, collected by M. P. Anderson at Chimbote, Ancash, in 1912; No. 11014, collected by A. A. Olsson at Bayovar, Piura; Nos. 34284 and 34300, presented by Sr. Constante Larco Hoyle in 1939; and M. C. Z. No. 17383, collected by G. K. Noble at Chongollapi, Piura, in 1916. These are in close agreement with the type. The last-named specimen has the loreal fused with the prefrontal on both sides. With these may be associated the U. S. National Museum specimen from Piura collected by C. H. T. Townsend; two British Museum specimens recorded from the Catamayo Valley in Ecuador by Parker; and two specimens reported by Peracca from Puntilla Santa Elena, in “a dry region of the coast” of Ecuador, west of Guayaquil; with the type, there are five female and seven male specimens. Ventrals and caudals in this series may be compared with those of the typical race:

Subspecies	Number of specimens	Sex	Ventrals	Caudals
<i>f. fitzingeri</i>	4	♀	227–236	77–94
<i>f. frizzelli</i>	{ 7	♂	188–206	68–77
	{ 5	♀	202–207	57–69

Amaral (1925, p. 12) noted the wide difference in ventrals between the male specimen from Piura and the female from Verrugas Canyon, supposing this to be a sexual difference. The female specimens now at hand from northern Peru and adjacent Ecuador make it clear that a distinct geographic race (with intermediates not yet demonstrated) is recognizable in this region.

Range.—Coastal Peru from Pacasmayo to Piura, in the adjacent Catamayo Valley in Ecuador, and in the dry coastal area near Guayaquil.

Remarks.—The Peruvian and Guayaquil series of five male and five female specimens forms a compact group with ventrals 197–206 in males and 202–207 in females. Two specimens, both males, reported by Parker from the Catamayo Valley, indicate a possible further reduction of ventrals in populations to the northeast, as these specimens have ventrals respectively 188 and 190.

Tachymenis peruviana Wiegmann

Tachymenis peruviana Wiegmann, Nova Acta Acad. Leop.-Carol., 17, p. 252, pl. 20, fig. 1, 1835—Peru.

Tachymenis peruviana is the common highland snake in Peru, ranging above 15,000 feet on the plateaus and mountain masses and extending downward on both sides of the Andes to about 6,000 feet. In Chile it reaches sea level at the latitude of Coquimbo.

The wide range of this species and the large series accumulating in American museums warrant treatment of this species as a special problem.

Philodryas elegans rufidorsatus Günther

Dromicus rufidorsatus Günther, Cat. Colubrine Snakes Brit. Mus., p. 130, 1858—America (here restricted to northern coastal Peru).

Tachymenis canilatus Cope, Proc. Acad. Nat. Sci. Phila., 20, p. 104, 1868—Guayaquil.

Lygophis poecilostomus Cope, Journ. Acad. Nat. Sci. Phila., (2), 8, p. 180, 1876—Valley of Jequetupeque.

Dryophylax vitellinus Cope, Proc. Amer. Phil. Soc., 17, p. 33, 1877—Pacasmayo.

Dryophylax elegans Cope, Proc. Amer. Phil. Soc., 17, p. 34, 1877.

Tachymenis elegans Boettger, Ber. Senck. Ges., 1889, p. 312, 1889.

Philodryas elegans Boulenger, Cat. Snakes Brit. Mus., 3, p. 1896 (part);¹ Werner, Abh. Mus. Dresden, 9, No. 2, p. 9, 1901 (part).

¹ Boulenger includes *Dromicus rufidorsatus* in his synonymy of *elegans* with the notation "part," but we find no other reference to Günther's species in his catalogue.

Philodryas simonsii Boulenger, Ann. Mag. Nat. Hist., (7), 6, p. 185, 1900—Cajamarca at 9,000 feet.

Philodryas elegans rufidorsatus is a small or medium-sized terrestrial snake with a dark vertebral band broken anteriorly into paired or alternating spots, or into crossbands. This band is separated from the light band bordering it on each side by a row of black dots, which fuse to form a continuous line posteriorly; below this is a darker lateral band.

This race ranges from the semi-arid areas near Guayaquil, Ecuador, to the Department of Libertad in Peru, from sea level to about 9,000 feet altitude.

We have examined twenty specimens: No. 5730, Verdun; No. 8386, Quebrada Sal Grande; Nos. 8387–8388, Quebrada Montero; 9807–9808, Quebrada Seca; Nos. 9776 and 9790, Quebrada Parinas; and No. 9791, Bayovar—all collected by A. A. Olsson; Nos. 8448–8449 from Parinas Valley, collected by E. W. MacCormack; No. 38682, Negritos, collected by H. E. Frizzell; all in the Department of Piura. Eight specimens were presented to the senior author at the Hacienda Chiclin, Libertad, in 1939.

This considerable series makes possible the partition of *elegans* with its complicated synonymy into a northern and a southern race, essentially paralleling other forms with two subspecies in the coastal province. The northern form may be redescribed as follows:

Description.—A slender, long-headed snake. Rostral much broader than deep in the adult, nearly as deep as broad in the young; frontal long and narrow; nasal divided; loreal about as long as deep; a single preocular which may reach the frontal or be separated from it to varying degrees; 2 postoculars; temporals 1–1, 1–2, or 1–3, usually with a small shield cut off from the anterior temporal so that the temporal formula may appear as 1–1–1, 1–1–2, 1–1–3, or 2–3; upper labials usually fourth and fifth entering the eye, occasionally 9; lower labials usually 10, six in contact with the chin shields, occasionally 9. Dorsal scale rows 19–17, 19 at mid-body. Ventrals 188–203, caudals 96–108 in males; 191–212 and 88–96 in females.

Coloration variable, typically with a darker dorsal band bounded by a lighter one, and with darker sides; head gray above with yellowish markings on the parietals and frontal; a darker grayish streak extending from the snout, through the eye, across the temporals and last upper labial to become continuous with the darker lateral band; upper and lower labials yellow with gray spots; venter yellow,

usually regularly spotted with brown or gray, occasionally uniform. One specimen completely uniform in coloration, like the type of *vitellinus*; two others approach uniformity of coloration.

Remarks.—The original description is poor and without exact locality. The fact that this form has been re-described four times as a new species seems to be related to the variable coloration and to the differences between the juvenile and adult, as well as to the fallibility of taxonomists.

Philodryas elegans rufidorsatus has heretofore been confused with *elegans elegans* of central and southern Peru. *P. e. rufidorsatus* has a somewhat lower number of ventrals and caudals, 17 instead of 15 scale rows posteriorly, and a somewhat different color pattern, when a pattern is developed.

Within *rufidorsatus* we can detect a cline in numbers of ventrals and caudals from north to south, as in *Oxyrhopus fitzingeri*.

Region	Number of specimens	Sex	Ventrals	Caudals
<i>Philodryas elegans rufidorsatus</i>				
Piura	5	♂	188-203	99-108
	4	♀	191-212	88-96
Libertad	4	♂	195-199	96-108
	5	♀	199-207	89-94
<i>Philodryas elegans elegans</i>				
Central and southern Peru . .	6	♂	207-217	112-123
	3	♀	199-203	97-111

Philodryas elegans elegans Tschudi

Lygophis elegans Tschudi, Fauna Peruana, Herp., p. 53, pl. 6, 1845—Urubamba and Lima (type locality here restricted to Lima).

Dromicus elegans Jan, Elenco Sist. Ophid., p. 67, 1863; Icon. Gén. Ophid., Livr. 25, pl. 1, fig. 2, 1867.

Philodryas elegans Boulenger, Cat. Snakes Brit. Mus., 3, p. 133, 1896 (part); Werner, Abh. Mus. Dresden, 9, No. 2, p. 9, 1901 (part); Amaral, Proc. U. S. Nat. Mus., 67, Art. 24, p. 15, 1925.

Dryophylax freminvillei Duméril and Bibron, Erp. Gén., 7, p. 1115, 1854—Guyane and Callao, Peru (type locality here restricted to Callao).

Philodryas freminvillei Jan, Elenco Sist. Ophid., p. 83, 1863; Icon. Gén. Ophid., Livr. 49, p. 4, fig. 2, 1879.

Philodryas elegans elegans is a ground snake with a conspicuous dark dorsal band which is continuous anteriorly instead of being broken into spots and which is bounded by a continuous black line instead of the row of black spots of *elegans rufidorsatus*. It has,

apparently, a considerably higher number of ventrals and caudals in both sexes.

This subspecies extends southward in the arid coastal region from the Rimac Valley to northern Chile. It is known to us from two specimens in Field Museum, Nos. 34177-34178, collected at the Cajamarquilla ruins, near Lima, by the senior author, and from a specimen in the Museum of Comparative Zoology, labeled only "Peru." Boulenger's specimens from Lima and the Island of San Lorenzo agree excellently with our Cajamarquilla specimens and with the type in numbers of ventrals and caudals. We are unable to allocate all of the specimens reported by Boulenger and all of the cotypes of *Dryophylax freminvillei*, without re-examination of the specimens, since many of them have inadequate data as to locality or sex. There is some indication that a third form with fewer ventrals and caudals is to be found in southern Peru and adjacent Chile (cf. Boulenger's specimens from Tacna and Chile).

Amaral's record of this species from Valparaiso, Chile, is doubtless in error.

Oxybelis acuminatus Wied

Coluber acuminatus Wied, Isis, p. 667, 1824; Beitr. Naturg. Bras., 1, p. 322, 1825—Espirito Santo River, Brazil.

Dryiophis acuminata Cope, Proc. Amer. Phil. Soc., 17, p. 34, 1877; Boettger, Ber. Senck. Ges., 1889, p. 314, 1889.

Oxybelis acuminatus Steindachner, Reise Novara, Rept., p. 177, 1867; Dunn, Proc. Biol. Soc. Wash., 36, p. 186, 1923; Parker, Ann. Mag. Nat. Hist., (11), 2, p. 445, 1938.

This extremely elongate snake, often referred to as a typically arboreal form, appears to extend into arid regions in many parts of its range. It is one of the few forms in coastal Peru not racially distinguishable, as far as is known, from specimens in other parts of its vast range, which extends from northern Mexico to eastern Brazil and Bolivia.

There are no specimens of this species from coastal Peru in the collections at our disposal.

Tantilla melanocephala capistrata Cope

Tantilla capistrata Cope, Journ. Acad. Nat. Sci. Phila., (2), 8, p. 181, 1876—Valley of Jequetepeque, Libertad, Peru.

Tantilla melanocephala (not of Linnaeus) Dunn, Proc. Biol. Soc. Wash., 36, p. 186, 1923; Parker, Ann. Mag. Nat. Hist., (11), 2, p. 445, 1938.

Tantilla melanocephala capistrata is a small terrestrial snake, brownish above with a black head and nape crossed by yellow bands on the snout and back of the head and with a yellow spot behind the eye. It is distinguished by contact of the prefrontal and second supralabial from the Amazonian race or races of *melanocephala*.

The range of *capistrata* as here defined appears to include besides northern coastal Peru the arid valley of the Marañón (Dunn, 1923) and the Catamayo and Malacatos valleys in southern Ecuador, thus transgressing the Andes.

Five specimens examined: four from Chiclin, Libertad, presented by Sr. Constante Larco Hoyle, F.M.N.H. Nos. 33744 and 34285-34287; and one collected by G. K. Noble at Perico, Cajamarca, in 1916, M.C.Z. No. 17391.

The Chiclin series includes three males with ventrals respectively 132, 133, and 133, and caudals 56, 30+, and 53; the single female has ventrals 143 and caudals 46. The Perico specimen, a female, has ventrals 155 and the tail incomplete. Parker's female specimen from the Catamayo Valley has ventrals 158, caudals 49. Thus the more northern specimens have a considerably higher number of ventrals; we assume that this gap may be filled by specimens from Piura. The Chiclin specimens agree in coloration with the type, which has ventrals 139 and caudals 71, and differs from our specimens in having only a single postocular.

Elapidae

Micrurus mertensi Schmidt

Elaps circinalis Cope, Proc. Amer. Phil. Soc., 17, p. 33, 1877 (not of Duméril and Bibron).

Micrurus mertensi Schmidt, Field Mus. Nat. Hist., Zool. Ser., 20, p. 192—Pacasmayo; Parker, Ann. Mag. Nat. Hist., (2), 11, p. 446, 1938.

A coral snake with black rings bordered by yellow rings, the black rings not in triads; top of head black, the black crown connected by a single black scale with the nuchal black ring; about 215 ventrals in males, 233 in females; and caudals respectively about 49 and 35.

Micrurus mertensi appears to be confined to the northern part of the Peruvian coastal region and the adjacent Catamayo Valley in Ecuador.

The type and paratypes were examined by the senior author in the Senckenberg Museum in 1932. His speculation as to a possible coastal locality, Chanchamayo, to account for a paratype so labeled

in the British Museum appears to be unnecessary in view of the common mislabeling of specimens from dealers; the "Chanchamayo" collection in the Dresden Museum, which includes coastal species like *Micrurus tschudii* and *Oxyrhopus fitzingeri*, re-enforces the suspicion that specimens from Carlos Schunke have repeatedly been mislabeled, perhaps through the fault of the receiving museum rather than his.

The relation of the coastal fauna to that of the Marañon Valley in Cajamarca may indicate that *Micrurus peruvianus*, from Perico and Bellavista, is more closely allied to *mertensi* than was thought when these two forms were described. Parker (1938, p. 446) has shown that this species meets *Micrurus ecuadorianus* and that it may be directly related; *Micrurus peruvianus* should also fall into this series of forms. Additional material is required for an adequate review of the problem thus raised.

A specimen in the collections of the Academy of Natural Sciences of Philadelphia, No. 6788, is presumably the specimen recorded by Cope from Pacasmayo; it is a male with ventrals 212 and caudals 42, and has black rings 18 + 6, thus differing slightly from the range of variation in the Senckenberg Museum specimens.

Micrurus tschudii tschudii Jan

Elaps tschudii Jan, Rev. Mag. Zool., 1858, p. 524, 1858—Peru (restricted to Rimac Valley, Department of Lima); Cope, Proc. Amer. Phil. Soc., 17, p. 33, 1877; Boettger, Ber. Senck. Ges., 1889, p. 316, 1889; Boulenger, Cat. Snakes Brit. Mus., 3, p. 422, 1896; Werner, Abh. Mus. Dresden, 9, No. 2, p. 10, 1901.

Micrurus tschudii Schmidt and Schmidt, Field Mus. Nat. Hist., Zool. Ser., 12, p. 132, pl. 12, 1925.

Micrurus tschudii tschudii Schmidt, Field Mus. Nat. Hist., Zool. Ser., 20, p. 202, 1936.

A coral snake readily distinguished from any other snake in the Peruvian coastal region by the arrangement of its black rings in triads, enclosing the pairs of yellow rings within the outer black rings and the triads separated by relatively narrow red rings. Distinguished from the subspecies *olssoni* by black spotting of the lower labials and anterior chin shields and of the yellow rings, by the tendency for the first black ring (the nuchal ring) to be complete beneath, and by a lower number of ventrals.

The typical subspecies ranges from the Department of Libertad to the Rimac Valley. See discussion of the variation cline under *Micrurus tschudii olssoni*, below.

Micrurus tschudii olssoni Schmidt and Schmidt

Micrurus olssoni Schmidt and Schmidt, Field Mus. Nat. Hist., Zool. Ser., 12, p. 130, pl. 11, 1925—Negritos, Piura, Peru.

Micrurus tschudii olssoni Schmidt, Field Mus. Nat. Hist., Zool. Ser., 20, p. 202, 1936.

Micrurus tschudii Amaral, Proc. U. S. Nat. Mus., 67, Art. 24, p. 17, 1925; Parker, Ann. Mag. Nat. Hist., (11), 2, p. 445, 1938.

Distinguished from *Micrurus tschudii tschudii*, in addition to the characters mentioned above, by considerably larger size.

Confined to the northern part of the Peruvian coastal region, in Piura, perhaps meeting *M. t. tschudii* in Libertad, and ranging from Piura into southern Ecuador, where, as Parker (1938, p. 445) points out, an additional form may perhaps be distinguished.

Considerable series of *Micrurus tschudii* are now available, and examination of these specimens shows that there is a well-marked cline in the number of ventrals from low at the north, in the Cata-mayo Valley in Ecuador, to high in the Rimac Valley. This is shown below.

Region	Number of specimens	Sex	Ventrals	Number of triads
Catamayo Valley.....	1	♂	190	13-14
	2	♀	195-196	
Piura.....	7	♂	196-204	10-12
	5	♀	206-213	10-13
Libertad and Ancash.....	8	♂	202-215	13-17
	10	♀	209-226	12-19
Lima.....	6	♂	206-216	14-19
	5	♀	216-232	13-16
"Bolivia".....	1	♂	200	20
	3	♀	204-207	17-22

The regularity of the above tabulation is marred by a male specimen in the Museum of Comparative Zoology from the desert between Trujillo and Chicama (No. 43751) with ventrals only 188, and a similarly aberrant male from Chiclin with only 193. It is by no means impossible that the Chiclin specimen might have been collected at a more northern locality, as the collection received from the Hacienda Chiclin had accumulated over a considerable period of years.

A further difficulty arises in allocating specimens without specific locality or with the supposedly erroneous locality Chanchamayo; we have assigned these as best we could to the Department of Lima.

Four specimens in the Museum d'Histoire Naturelle in Paris, collected by M. Wiener, are entered as from "Bolivia." We believe this to be in error. These specimens have a low number of ventrals, agreeing with the Piura series, but have a higher number of triads than is to be found in the forty-five other specimens.

On the whole, the most conspicuous step in the cline of ventrals is between the Chiclin and Pacasmayo specimens and the series from Piura. Thus the break between the northern and southern forms does not correspond with that in *Oxyrhopus fitzingeri* or *Philodryas elegans*. It may well be that the supposed "step" is illusory and that a larger and more widely distributed series will exhibit a more uniform cline.

Crotalidae

Trimeresurus barnetti Parker

Bothrops barnetti Parker, Ann. Mag. Nat. Hist., (11), 2, p. 447, 1938—mouths of the Quebradas Honda and Perines between Lobitos and Talara, Piura, Peru; paratypes from Lobitos.

T. barnetti is a small desert pit-viper closely resembling the fer-der-lance (*T. atrox*) but differing in its smaller size, lower number of subcaudals, and the enlarged terminal scute of the tail.

This species is known only from the low coastal desert of northern Piura, between Lobitos and Negritos.

The material examined consists of a single female specimen, F.M.N.H. No. 11013, collected at Quebrada Parinas near Negritos by A. A. Olsson, May, 1928. This has ventrals 184, caudals 43, and agrees essentially with the type series; a row of small lateral spots present in our specimen is not mentioned by Parker.

Trimeresurus pictus Tschudi

Lachesis picta Tschudi, Fauna Peruana, Herp., p. 61, pl. 10, 1845—higher montaña of Peru (in error); Boulenger, Cat. Snakes Brit. Mus., 3, p. 540, 1896—Lima, Peru.

Bothrops pictus Jan, Elenco Sist. Ophid., p. 126; Icon. Gén. Ophid., Livr. 47, pl. 3, fig. 3, pl. 4, fig. 2, 1875; Amaral, Proc. U. S. Nat. Mus., 67, Art. 24, p. 29, 1925.

Trimeresurus pictus is a medium-sized pit-viper characterized by a lower number of scale rows at mid-body than *barnetti*, 21–23 as opposed to 23–25, a series of irregular mid-dorsal blotches, two rows of alternating lateral spots, and a head pattern of obliquely transverse markings.

This is the common pit-viper of the coastal desert region, ranging from Libertad south to Arequipa. It is said to occur at Chiclin, and is here reported from Chimbote, Chosica, and the Majes Valley.

We have examined six specimens, F.M.N.H. Nos. 5662-5664, from Chimbote, Ancash, collected by M. P. Anderson in 1912; No. 39991, from the Majes Valley, collected by Sr. Romano; M.C.Z. No. 3573, taken at Lima by Samuel Garman; and M.C.Z. No. 45716, from Chosica, collected by David and Bruce Hertig and G. P. Gardner in 1940.

In the three male specimens the ventrals number 167-169 and caudals 46-49; in three females 170-173 and 44-48. We assume the number of caudals given by Tschudi, 74, to be a misprint for 47. Our series agrees well with Boulenger's re-description of the species, but exhibits considerable variation in the head shields. Scale rows between eye and upper labials one or two; upper labials 8 to 12, the second usually entering the pit, occasionally the third (one side on M.C.Z. No. 45716), or none (F.M.N.H. No. 39991). The general coloration may be pale brown or light gray. With the few specimens available, we are not able to divide the series into a northern and a southern race, as we had thought might be possible (Schmidt and Walker, 1943, p. 295).

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